

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) An apparatus for processing a substrate with a plasma, the apparatus comprising:

a first electrode;

a second electrode;

a tubular separating member directly contacting said first electrode and directly contacting said second electrode forming a sidewall extending between said first electrode and said second electrode, and said tubular separating member, said first electrode, and said second electrode bounding a processing region vacuum enclosure, said tubular separating member comprising a dielectric material capable of electrically isolating said first electrode from said second electrode and a first surface exposed to the pressure inside said processing region vacuum enclosure isolating said processing region vacuum enclosure from air at atmospheric pressure;

a process gas port for introducing a process gas to said processing region vacuum enclosure; and

a vacuum port for evacuating said processing region vacuum enclosure to a pressure suitable for generating the plasma from the process gas in said processing region vacuum enclosure.

2. (Original) The apparatus of claim 1 further comprising:

a vacuum manifold coupled with said vacuum port, said vacuum manifold being electrically isolated from said first electrode and said second electrode.

3. (Original) The apparatus of claim 2 wherein said vacuum manifold includes an enclosed volume proximate to said vacuum port and further comprising:

an insert of an electrically insulating material positioned inside said enclosed volume, said insert including a first plurality of passages coupling said vacuum manifold with said vacuum port.

4. (Original) The apparatus of claim 3 wherein said vacuum port is defined by a second plurality of passages extending through said first electrode and registered with said first plurality of passages.

5. (Currently Amended) The apparatus of claim 1 further comprising:

a vacuum pump coupled with said vacuum port and operative for evacuating said processing region vacuum enclosure to said pressure suitable for generating the plasma from the process gas in said processing region vacuum enclosure.

6. (Currently Amended) The apparatus of claim 1 further comprising:

a process gas supply coupled with said process gas port for introducing the process gas to said processing region vacuum enclosure.

7. (Currently Amended) The apparatus of claim 1 wherein said second electrode includes a plurality of openings arranged in a pattern effective for communicating process gas from said process gas port to said processing region vacuum enclosure.

8. (Currently Amended) The apparatus of claim 1 further comprising:

a substrate holder positioned inside said processing region vacuum enclosure and configured to support the substrate on said first electrode.

9. (Original) The apparatus of claim 8 wherein said substrate holder is electrically coupled with said first electrode.

10. (Original) The apparatus of claim 1 further comprising:

an electrically-conductive enclosure surrounding said separating ring, said first electrode, and said second electrode, said first electrode and said second electrode each separated from said conductive enclosure by an air gap.

11. (Currently Amended) The apparatus of claim 10 wherein said enclosure includes a base and a lid movable relative to said lid between opened and closed positions for accessing said processing region vacuum enclosure, said lid carrying said first electrode for movement relative to said base.

12. (Previously Presented) The apparatus of claim 10 further comprising a coolant port in said lid configured for supplying a flow of a coolant fluid to said air gap for cooling said first electrode and said second electrode.

13. (Original) The apparatus of claim 1 wherein said first electrode includes said vacuum port and said second electrode includes said process gas port.

14. (Original) The apparatus of claim 13 wherein said second electrode includes a plurality of gas openings coupled with said process gas port, said plurality of gas openings positioned in said second electrode to distribute process gas across a confronting surface of the substrate.

15. (Currently Amended) An apparatus for plasma processing a plurality of substrates, the apparatus comprising:

a first electrode;

a second electrode positioned with a spaced apart relationship relative to said first electrode;

a third electrode positioned between said first electrode and said second electrode;

a first tubular separating member directly contacting said first electrode and directly contacting said third electrode forming a first sidewall extending between said first electrode and said third electrode, said first tubular separating member, said first electrode, and said third electrode bounding a first processing region vacuum enclosure, said first electrode configured to support one of the plurality of substrates in said first processing region vacuum enclosure for plasma processing, and said first tubular separating member comprising a dielectric material for electrically isolating said first electrode from said third electrode and an inwardly-facing surface

exposed to the pressure inside said first processing region vacuum enclosure isolating said first processing region vacuum enclosure from air at atmospheric pressure;

a second tubular separating member directly contacting said second electrode and directly contacting said third electrode forming a second sidewall extending between said second electrode and said third electrode, said second tubular separating member, said second electrode, and said third electrode bounding a second processing region vacuum enclosure, said second electrode configured to support one of the plurality of substrates in said second processing region vacuum enclosure for plasma processing, and said second tubular separating member comprising a dielectric material for electrically isolating said second electrode from said third electrode and an inwardly-facing surface exposed to the pressure inside said second processing region vacuum enclosure isolating said second processing region vacuum enclosure from air at atmospheric pressure;

at least one process gas port for introducing a process gas to said first processing region vacuum enclosure and second processing region vacuum enclosure; and

a vacuum port for evacuating said first and second processing regions region to a pressure suitable for generating the plasma from the process gas in said first processing region vacuum enclosure and said second processing region vacuum enclosure.

16. (Original) The apparatus of claim 15 wherein said vacuum port is defined in said second electrode.

17. (Currently Amended) The apparatus of claim 16 wherein said first electrode includes a first process gas port configured for introducing the process gas to said first processing region vacuum enclosure and said third electrode includes a second process gas port configured for introducing the process gas to said second processing region vacuum enclosure.

18. (Currently Amended) The apparatus of claim 1 wherein said first electrode is adapted to support the substrate in said processing region vacuum enclosure.

19. (Currently Amended) The apparatus of claim 1 wherein said second electrode is movable relative to said first electrode between a first position to close said processing region vacuum enclosure and a second position for transferring the substrate to and from said processing region vacuum enclosure, and said tubular separating member configured for forming the vacuum-tight seal between said first electrode and said second electrode when said second electrode is moved to said first position.

20. (Previously Presented) The apparatus of claim 1 wherein said first electrode has a generally-planar first surface, said second electrode has a generally-planar second surface confronting said first surface of said first electrode, and said first surface of said first electrode and said second surface of said second electrode are directly contacted by said tubular separating member.